



PATENT SPECIFICATION

593,582

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PROVISIONAL SPECIFICATION

No. 236 A.D. 1945.

Improvements in Silk Screen Printing Apparatus

I, ALBAN JOSEPH ROBERTS, a British Subject, of 7, Doughty Mews, London, W.C.1, do hereby declare the nature of this invention to be as follows:—

- 5 In my co-pending Patent Application No. 9968/48 (Serial No. 567,896) I have described a manually operated silk screen printing apparatus comprising a squeegee carriage adapted to be manually reciprocated backwards and forwards across the screen on a runner frame carried by the screen, and carrying a pair of squeegees disposed in inverted V-formation, the said squeegees being so mounted in the carriage 10 that the following squeegee is pressed into engagement with the screen whilst the leading squeegee is lifted clear of the screen whichever way the carriage is moved over the screen. The chief object 15 of the present invention is to provide an improved or modified form of such apparatus.

- According to one feature of the present invention, the frame which carries the silk 25 or like screen is provided with a catch device adapted to engage with the squeegee carriage and hold the same in position when the screen frame is raised for the removal of the print or prints.

- 30 Preferably the catch device is pivotally mounted at the upper end of a small standard carried by the front end of the screen frame and has connected thereto a downwardly extending rod passing 35 through the screen frame. Below the screen frame a compression spring surrounds the rod, the arrangement being such that when the screen frame is lowered on to the bed of the machine to 40 make a print, the lower end of the rod engages with the bed of the machine and is moved upwardly against the action of the compression spring to free the catch from the squeegee frame. On the other 45 hand, when the screen frame is raised at the completion of a print, the compression spring comes into play and pulls the catch down into engagement with the

squeegee frame and thus holds the same anchored firmly in its forward position 50 whilst the screen frame is raised. This will prevent the squeegee frame running backwards down the runners under its own weight.

According to a further feature of the 55 present invention, the squeegee is dismountably carried by its carriage so that at the completion of a days work it may be taken off and placed in a cleaning trough so that it will be clean for the 60 start of the next days work.

The squeegee according to the present invention is preferably in the form of a strip of rubber, semi-circular in cross-section and reinforced along the upper 65 curved portion by appropriately shaped metal strips. Two pins stand up from the upper metal reinforcing strip, one towards each end, and such pins extend into elongated slots in arms carried at the 70 lower ends of the spindles which are provided with the handles above the squeegee frame. No springs are necessary with such a construction, the handles being 75 turned slightly as the squeegee frame is moved up and down the runners. This turning of the handles will cause the following edge of the rubber strip to engage with the screen whichever way 80 the carriage is being moved, the curved rubber strip squeegee pivoting slightly about that edge in contact with the screen to move the leading edge out of contact with the screen. With such a construction it is a simple matter to remove the 85 squeegee from the frame at the end of a days work and to drop it into a trough of cleaning liquid. All chance of the squeegee being dirty or caked with 90 hardened paint or the like when work is commenced next morning will be avoided.

Dated this 15th day of December, 1944.

LESLIE N. COX,

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Agent for the Applicant.

[Price 1/-]

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PROVISIONAL SPECIFICATION

No. 18253 A.D. 1945.

Improvements in Silk Screen Printing Apparatus

I, ALBAN JOSEPH ROBERTS, a British Subject, of 7, Doughty Mews, London, W.C.1, do hereby declare the nature of this invention to be as follows:—

5 In my co-pending Patent Application No. 9968/43 (Serial No. 567,896) I have described a manually operated silk screen printing apparatus comprising a squeegee carriage adapted to be manually reciprocated backwards and forwards across the screen on a runner frame carried by the screen, and carrying a pair of squeegees disposed in inverted V-formation, the said squeegees being so mounted in the carriage that the following squeegee is pressed into engagement with the screen which ever way the carriage is moved over the screen, the leading squeegee being lifted clear of the screen. The chief object of the present invention is to provide an improved or modified form of such apparatus.

According to one feature of the present invention, the frame which carries the silk or like screen is provided with a catch device adapted to engage with the squeegee carriage and to hold the same in position when the screen frame is raised for the removal of the print or prints.

30 Preferably the catch device is pivotally mounted at the upper end of a small standard carried by the front end of the screen frame and has connected thereto a downwardly extending rod passing through the screen frame. A spring, compression or tension as desired, is provided, the arrangement being such that when the screen frame is lowered on to the bed of the machine to make a print, the lower end of the rod engages with the bed of the machine and is moved upwardly against the action of the spring to free the catch from the squeegee frame. On the other hand, when the screen frame is raised at the completion of a print, the spring comes into play and pulls the catch

down into engagement with the squeegee frame and thus holds the same anchored firmly in its forward position whilst the screen frame is raised. This will prevent the squeegee frame running backwards down the runners under its own weight.

According to a further feature of the present invention, the squeegee is so arranged that at the completion of a day's work it may be removed with its carriage and easily cleaned.

The squeegee according to the present invention may comprise two strips of rubber disposed at an angle to one another and carried by an angular upper rigid member. The angular rigid member is pivotally mounted in end brackets carried by the squeegee carriage. Two pins stand up from the upper rigid metal or like member, one towards each end, and such pins extend freely into elongated slots in arms carried at the lower ends of spindles which are provided with elongated arms having upturned handles above the squeegee carriage. No springs are necessary with such a construction, the handles being moved outwardly or inwardly as the squeegee carriage is moved up and down the runners. This movement of the handles will cause the following edge of the squeegee to engage with the screen whichever way the carriage is being moved, the squeegee pivoting about its mounting in the end brackets. Stops are preferably provided to limit the movement of the handles in both directions. With such a construction it is a simple matter to undo the runners and to remove the squeegee and its carriage from the frame for cleaning purposes.

Dated this 16th day of July, 1945.

LESLIE N. COX,

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Agent for the Applicant.

COMPLETE SPECIFICATION

Improvements in Silk Screen Printing Apparatus

I, ALBAN JOSEPH ROBERTS, a British Subject, of 7, Doughty Mews, London, W.C.1, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements

in manually operated silk screen printing apparatus of the kind in which a squeegee carriage is adapted to be manually reciprocated backwards and forwards across the screen and carries a pair of squeegees disposed in inverted V or like formation, the said squeegees being so mounted in the carriage that the follow-

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ing squeegee is pressed into engagement with the screen whilst the leading squeegee is lifted clear of the screen whichever way the carriage is moved over the screen. In my prior Patent No. 567,896 I have claimed apparatus of the kind above set forth and in which the squeegee carriage is adapted to slide backwards and forwards on a runner frame carried by the screen frame, which apparatus is characterised in that the two squeegees are carried by end brackets pivotally mounted in the carriage and in that the carriage is provided with a pair of pivoted handles for moving the carriage backwards and forwards across the screen, the said brackets being so coupled to the handles that as the handles are moved from a pulling to a pushing position for moving the carriage the brackets are swung about their pivots to position the squeegees in the desired way. The chief object of the present invention is generally to improve the construction of such apparatus and to simplify the operation of the same.

According to one feature of the present invention, the frame which carries the silk or like screen is provided with a catch device adapted to engage with the squeegee carriage and to hold the same in position when the screen frame is raised for the removal of the print or prints.

Preferably the catch device is pivotally mounted at the upper end of a small standard carried by the front end of the screen frame and has connected thereto a downwardly extending spring-controlled rod passing through the screen frame, the arrangements being such that, when the screen frame is lowered on to the table of the apparatus to make a print, the lower end of the rod engages with the table and is moved upwardly against the action of the spring to free the catch from the squeegee frame, whilst, when the screen frame is raised at the completion of a print, the spring comes into play and pulls the catch down into engagement with the squeegee frame and thus holds the same anchored firmly in its forward position whilst the screen frame is raised.

According to a further feature of the present invention, the squeegees are pivotally mounted at their ends in the squeegee frame and are adapted to be controlled by the movement of arms carried at the lower ends of spindles mounted in the squeegee frame, and the apparatus is characterised in that the said spindles are provided with elongated forwardly extending operating handles adapted to be moved towards one another to bring one squeegee into operation and to be moved away from one another to

bring the other squeegee into operation, stops being provided on the squeegee frame to limit the movement of the said handles in both directions.

In order that this invention may be the more clearly understood and readily carried into effect, I will proceed to describe the same with reference to the accompanying drawings, which illustrate by way of example one convenient embodiment of this invention, and in which:—

Figure 1 is a perspective view of the complete manually operated silk screen printing apparatus, a part being broken away the more clearly to show the construction, and

Figures 2 and 3 are detail views showing the two positions of the catch device for holding the squeegee frame.

Referring now to the drawings, the apparatus comprises a table 10 which may, of course, be of any shape and size having hinged thereto at 11 the frame 12 of the silk or like screen 13. The forward end of the screen frame is normally clamped to the table 10 by means of the hinged clip 14 and counterbalance weights 15 are provided to facilitate the raising of the frame when it is desired to remove a print.

Runners 16 are provided, one at each side of the frame, these runners being supported at the right height above the frame 12 by means of brackets 17. Conveniently the runners 16 are in the form of round rods and are slotted at their ends to take about the edges of the brackets 17. At their forward ends, the runners are secured to the brackets by means of split pins, the rear ends being secured by plain pins 19. In this way the split pins 18 may be removed and the runners 16 swung up about the pins 19 for a purpose hereinafter explained.

Arranged on the runners 16 is the squeegee frame 20 which is provided with upper and lower sets of ball-bearing rollers 21 to facilitate its movement backwards and forwards along the runners 16. The squeegee frame is provided with downwardly depending end brackets 22, in the lower ends of which is pivoted a squeegee carrier 23. This squeegee carrier may comprise an angular piece of metal of the required length, the squeegees proper, which are formed of strips of rubber one of which can be seen at 24, being suitably secured one to each flange of the carrier 23.

To secure the desired operation of the apparatus it is necessary that the squeegee carrier 23 should rock on its pivots in such a manner that whatever be the direction of movement of the squeegee carriage on the runners 16 the following squeegee

is kept in contact with the screen 13 whilst the leading squeegee is raised clear of the same.

To this end the squeegee carriage 20 is provided with spaced plates 30 in which are mounted vertical spindles 31. At their lower ends the spindles are provided with slotted arms, one of which can be seen at 32. The slotted arms extend away from each other in opposite directions and engage pins, one of which can be seen at 33 upstanding from the squeegee carrier 23. By turning the spindles 31 the squeegee carrier 23 can thus be rocked about its pivots to secure the desired operation. The means for turning the spindles comprise elongated handles 34 extending forwardly and having upturned ends 35. Upstanding stops 37 are provided on the plates 30 to limit the movement of the handles 34 in both directions, the stops being preferably surrounded by rubber sleeves and being so positioned that when the handles 34 are engaged with them the squeegees are pressed with the desired pressure against the screen.

In use the upturned ends 35 of the handles 34 are gripped in the hands and are moved towards one another until the stops are engaged. The squeegee carriage is now pushed to the back of frame 12. On the return movement the upturned ends 35 of the handles are moved apart until the stops are engaged and the squeegee carriage is pulled forward to the front of the frame. No springs are necessary with such a construction since the movement of the squeegees is automatic and the required pressure ensured by keeping the handles against the stops.

The reason for pivoting the runners will now be apparent. By removing the split pins 18 the runners can be swung up and the whole squeegee carriage can be removed for cleaning purposes.

As above-mentioned, the frame which carries the silk or like screen is provided with a catch device adapted to engage with the squeegee carriage and to hold the same in position when the screen frame is raised for the removal of the print or prints.

The catch device 40 is pivotally mounted at the upper end of a small standard 41 carried by the front end of the screen frame 12 and has connected thereto a downwardly extending rod 42 passing through the screen frame 12. A spring 43 is provided about the lower end of the rod 42, the arrangement being such that when the screen frame is lowered on to the table 10 to make a print (Figure 2), the lower end of the rod 42 engages with the table and is moved upwardly against the action of the spring 43 to free the

catch from the squeegee carriage 20. On the other hand, when the screen frame is raised at the completion of a print (Figure 3), the spring 43 comes into play and pulls the catch 40 down into engagement with the squeegee carriage and thus holds the same anchored firmly in its forward position whilst the screen frame is raised. This will prevent the squeegee frame running backwards down the runners under its own weight.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Manually operated silk screen printing apparatus of the kind set forth, characterised in that a frame which carries the silk or like screen is provided with a catch device adapted to engage with the squeegee carriage and hold the same in position when the screen frame is raised for the removal of the print or prints.

2. Manually operated silk screen printing apparatus according to Claim 1, in which the catch device is pivotally mounted at the upper end of a small standard carried by the front end of the screen frame and has connected thereto a downwardly extending spring-controlled rod passing through the screen frame, the arrangement being such that, when the screen frame is lowered on to the table of the apparatus to make a print, the lower end of the rod engages with the table and is moved upwardly against the action of the spring to free the catch from the squeegee frame whilst, when the screen frame is raised at the completion of a print, the spring comes into play and pulls the catch down into engagement with the squeegee frame and thus holds the same anchored firmly in its forward position whilst the screen frame is raised.

3. Manually operated silk screen printing apparatus of the kind set forth and in which the squeegees are pivotally mounted at their ends in the squeegee frame and are adapted to be controlled by the movement of arms carried at the lower ends of spindles mounted in the squeegee frame, characterised in that the said spindles are provided with elongated forwardly extending operating handles adapted to be moved towards one another to bring one squeegee into operation and to be moved away from one another to bring the other squeegee into operation, stops being provided on the squeegee frame to limit the movement of the said handles in both directions.

4. Manually operated silk screen printing apparatus according to Claim 3, in

which said stops are surrounded by rubber sleeves.

5. Manually operated silk screen printing apparatus according to Claim 3 or
5 Claim 4, characterised in that the arms at the lower ends of the spindles are slotted and engage directly with pins upstanding from a common member carrying the squeegees.
- 10 6. Manually operated silk screen printing apparatus according to any of the preceding Claims 3 to 5, provided with a

catch device to engage with the squeegee carriage as claimed in Claim 1 or Claim 2.

7. The improved manually operated
15 silk screen printing apparatus, substantially as hereinbefore described with reference to the accompanying drawings.

Dated this 23rd day of November, 1945.

LESLIE N. COX,

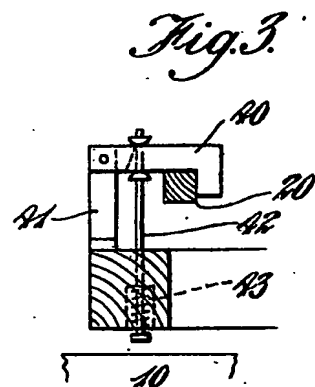
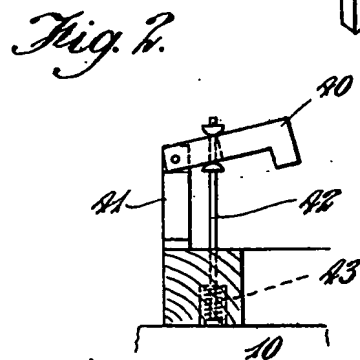
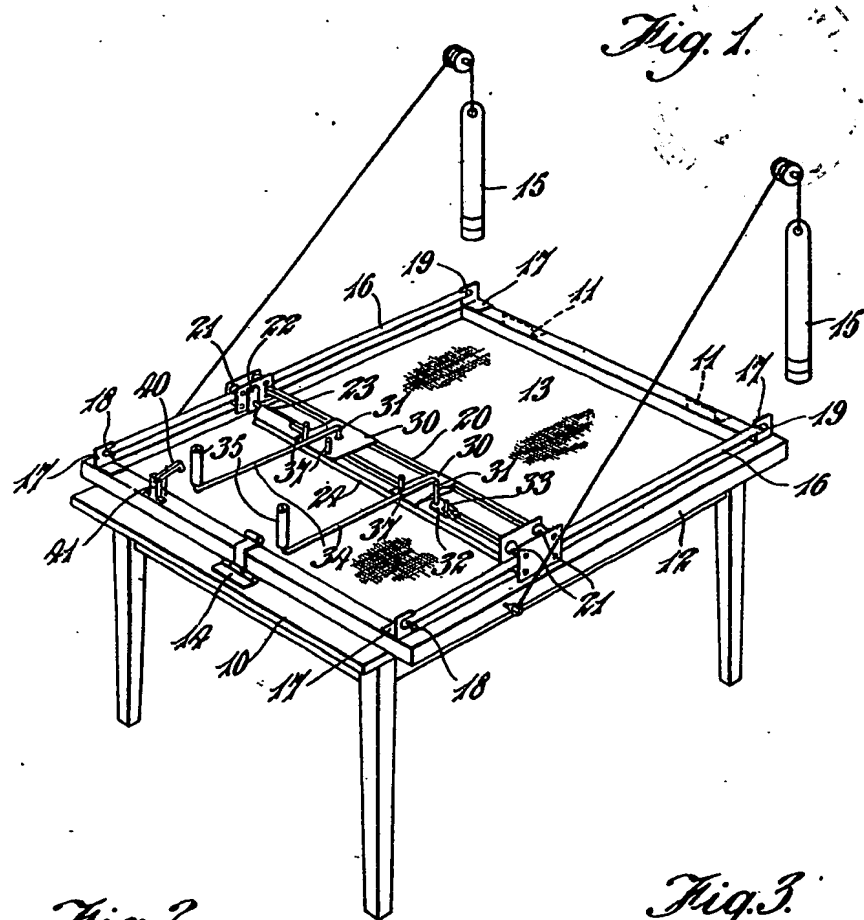
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H.M.S.O. (Ty. R)

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